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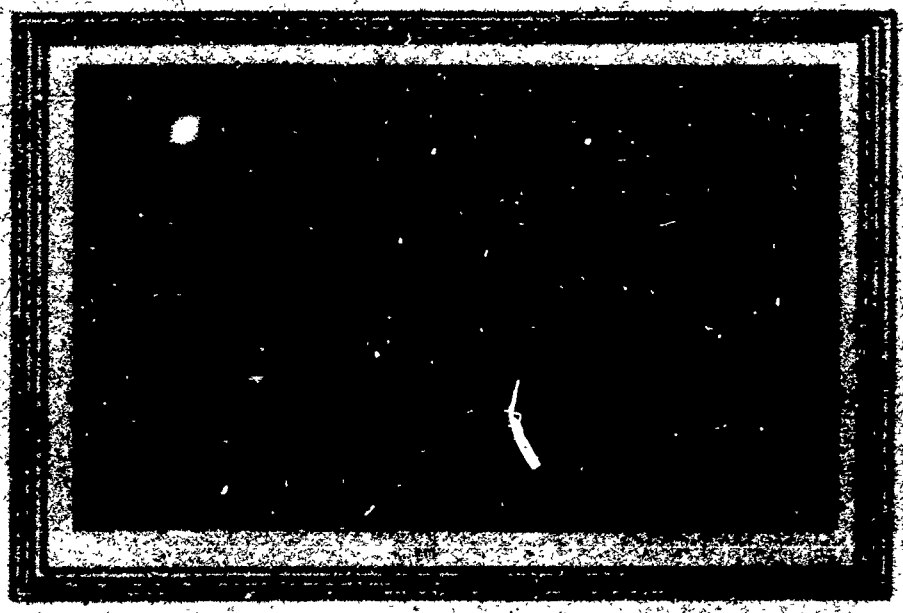
ABSTRACT

Project C-BE and CONDUIT had overlapping research objectives concerning the transferability of computer-related curriculum materials. In this regard, the projects co-sponsored an advertisement placed in the Journal of Chemical Education offering a "Free Demonstration of Computer Based Education in Chemistry." Forty packets were mailed. Of this number, 23 were direct responses to the advertisement, 9 were sent through personal or indirect contact, and 8 were sent as unsolicited information. Results of the project, including usage, reasons for not accessing the programs, user evaluation of the programs, and computer costs are discussed. (Author/EMH)



Project C-BE

GRANT GY-9340

COMPUTER-BASED SCIENCE
AND
ENGINEERING EDUCATION

DIRECTORS:

DR. JOHN J. ALLAN III
DR. J. J. LAGOWSKI

413 ENGINEERING LAB BUILDING
THE UNIVERSITY OF TEXAS AT AUSTIN
AUSTIN, TEXAS 78712
(512) 471-4191

A Summary Report of the Results of An Advertisement Placed in the Journal of Chemical Education Offering a Free Demonstration of Computer-Based Education In Chemistry

EP-19/8/10/73

A Project of Project C-BE under Grant GY-9340

"The Use of Computer-Based Teaching Techniques

in Undergraduate Science and Engineering

Education" and CONDUIT Project under Grant GY-31753

Supported Jointly by The University of Texas

at Austin and the National Science Foundation

ABSTRACT

Projects C-BE and CONDUIT have overlapping research objectives concerned with the transferability of computer-related curriculum materials. In this regard, the projects co-sponsored an advertisement placed in the Journal of Chemical Education offering a "Free Demonstration of Computer-Based Education in Chemistry." Forty packets of information were mailed. Of this number, 23 were in direct response to the advertisement, 9 were sent through personal or indirect contact, and 8 were sent as unsolicited information. Results of this project, including usage, reasons for not accessing the programs, user evaluation of the programs and computer costs are discussed.

Introduction

An experiment in conjunction with the research on the transferability of computer-related curriculum materials was conducted by Project C-BE (Computer-Based Education) and Project CONDUIT. (A Consortium of Regional Computer Networks at Oregon State, North Carolina, Dartmouth, Iowa, and The University of Texas at Austin concerned with the transportation and dissemination of computer-related curricular materials.)

An advertisement (see Appendix A) was placed in the December, 1972, issue of the Journal of Chemical Education in which an offer was made for a "Free Demonstration of Computer-Based Education in Chemistry." Cost of the advertisement was $215.00.

The report summarizes the results of that experiment.

Responses

Twenty-three responses were received as a direct result of the advertisement. Each respondee was mailed a prepared packet of materials containing computer access passwords, procedures for signing-on to the University of Texas TAURUS system, accessing the computer lessons, and signing-off, documentation for the eight computer-based lessons used in the experiment, and questionnaire evaluation forms. In addition, nine packets were delivered through personal or indirect contacts and 8 packets were sent as unsolicited information, bringing the total number of packets dispersed to forty. The names and addresses to whom packets were delivered are listed in Appendix B. A sample packet is available from Project C-BE (University of Texas at Austin, Austin, Texas 78712).

Of the forty packets delivered, five recipients completed and returned questionnaires, six recipients indicated by letter that they planned to access the programs in late summer, six indicated by letter that they were unable to access the materials due to limitations of their hardware facilities (generally acoustic couplers or appropriate terminals), three indicated the materials were not appropriate for their particular application, one indicated a lack of time, and one indicated a lack of funds to cover long distance telephone charges as reasons for not accessing the lessons.

Thus some form of response was obtained from a total of 22 of the 40 people receiving packets. Of this number, 15 had received packets as a direct result of the advertisement. It should be noted also that 8 of the packets that were delivered were actually unsolicited by the recipient and were sent only as a matter of information. Table I summarizes the deliveries and responses. Appendix C contains copies of the letters received explaining the reason for not accessing the lessons.

Table I

Packet Deliveries and Responses

	Packets Delivered	Questionnaire Completed	Summer Use Planned	Lack of Funds Or Hardware Or Time	Material Not Applicable	No Response
Response to Advertisement	23	1	4	7	2	9
Personal or Indirect Contact	9	4	2	1	1	1
Unsolicited	8	0	0	0	0	8
Total	40	5	6	8	3	18

Table II
Questionnaire Item Summary

I. Lessons Accessed: one (1), two (2), five (1), eight (1).

II. A. Terminal Used: Model 33 TTY (3), RCA/CRT (1), unknown (1).

B. Teaching experience: 2-5 yrs. (2), 6-10 yrs. (2), 11-15 yrs. (1)

D. 1. Content of Materials: Superior-Excellent (1), Excellent (2), Excellent-Good (1), Good (1)*, Average (0), Fair (0), Substandard (0), Completely unacceptable (0).

D. 2. Pedagogical Techniques: Excellent (2), Excellent-Good (1), Good (2), Average (0), Fair (0), Substandard (0), Completely Unacceptable (0).

D. 3. Adoption of Techniques (assuming support were available). Yes, without reservation (4), Yes, but on a trial basis (1), Undecided (0), Not at this time (0), Not ever (0).

D. 4. Following instructions within packet: Easy to follow (2), Successful, but some minor trouble due to unfamiliarity (3), Not successful because of major troubles (0), A complete failure (0).

D. 5. Rating of Curriculum Materials: C-BE is superior to institution course matter (0), C-BE is better than institution course matter (0), C-BE is equal to or the same as institution course matter (4), C-BE is below rating (0), C-BE is greatly below institution course matter (0), No response (1).

D. 6. Computer Activity on Campus: Has no computer (2), has computer (3), (Univac 1108, H-P 2000C, PDP-10,8).

D. 7. Chemistry Department Computer?: No (4), Yes (1), (IBM 7094).

D. 8. Prior experience with computers in education?: No (2), Yes (3), (BASIC-2, FORTRAN-1).

D. 9. Would you use similar programs written in BASIC?: Yes (4) Unsure (1).

D. 10. Language preference for programs?: BASIC (2), BASIC or FORTRAN (1), No Opinion (1), CLIC (1).

D. 11. How would you use the programs in class?: Homework for a grade material for no credit or voluntary basis as a supplement for credit (3), Homework credit (1), Required for credit (1).

D. 14. Interested in directions on how to prepare computer-based materials?: Yes (3), No (1) (already familiar), No response (1).

D. 15. Interested in pursuing use of chemistry computer materials in your class?: Yes (5).

*Lessons accessed were not those described in packet.

Evaluation of the Computer-Based Lessons

In general, the lessons received enthusiastic support from the five people who accessed them and completed the questionnaire. Table II summarizes the responses to the items, and Appendix D contains copies of the completed questionnaires.

It should also be noted that as a direct result of using these lessons, Dr. Bassam Shakhashiri of the University of Wisconsin at Madison plans further use of a wider selection of the University of Texas CLIC Chemistry lessons during the summer and fall of 1973. The lessons will be incorporated into chemistry classes as supplements to traditional instruction. A report of this usage will be forthcoming. Dr. William Torop, West Chester State College, West Chester, Pennsylvania, also plans to incorporate a series of Computer-Based Chemistry lessons with his classes in the fall, 1973, as a result of accessing the samples in the experiment.

Computer Costs and On-line Time

The costs and on-line time for access of the lessons by each participant are listed in Table III. An average of $1.44 for computer time and $0.55 for line time was used in interacting with the lessons. The average on-line time was 82 minutes. Considering the total computer costs and total hours of on-line time, the cost per terminal hour averages $1.44. Cost per lesson averaged $0.56. Cost of the long distance line charges is not available.

Table III

Computer Costs and On-line Time

Participant	Computer Processing Costs ($)	Computer Line Costs($)	Time On-line (minutes)	Number of Lessons	Average Cost Lesson
Hutchison	0.67	0.06	9*	2	0.37
Weill	0.88	0.29	44	2	0.58
Shakhashiri	3.55	1.62	243	8	0.65
Torop	0.52	0.29	44	1	0.81
Paukstelis	1.57	0.48	72	5	0.41

* This participant's institution is a member of the University of Texas Computation Center Southwest Regional Computer Network, and he was already familiar to a great degree with the CLIC lessons.

Appendix A

Copy of the Advertisement in the

December 1972 issue of

The Journal of Chemical Education

COMPUTER-BASED EDUCATION

IN CHEMISTRY

FREE DEMONSTRATION AVAILABLE

Curriculum Units Available for the Following Topics

1. Colligative Properties
2. Solution Concentration
3. Phase Changes
4. Heterogeneous Equilibria
5. Organic Synthesis: Electrophilic Aromatic Substitution
6. Elementary NMR Interpretation
7. Elementary Alkene-related Synthesis
8. Nomenclature of Alkanes

Write or Call: Professor J. J. Lagowski
Department of Chemistry
University of Texas
Austin, Texas 78712
512-471-3288

For Further Details and Your Free Trial Packet of Program Description and Demonstration Account Number

This Project is a Part of the Computer-Based Education (C-BE) and CONDUIT Projects Supported Jointly by NSF and The University of Texas at Austin.

Appendix B

List of Recipients of Packet Materials

Appendix B

List of Recipients of Packet Materials

(The asterisk(*) denotes responding as a direct result of the ad.)

1. Dr. Milton Glick (Materials unsolicited)
   Wayne State University
   Detroit, Mich. 48202

2. *Dr. David M. Howell (No response)
   Associate Professor of Chemistry
   Department of Chemistry
   Northeastern University
   Boston, Mass. 02115

3. *Dr. Jeffrey E. Keiser (Lack of hardware)
   Associate Professor of Chemistry
   Coe College
   Cedar Rapids, Iowa 52402

4. *Dr. Graeme Welch (Summer use planned)
   Chairman, Chemistry/Biology Program
   John Abbott College
   P.O. Box 2000
   Ste. Anne De Bellevue
   Quebec, Canada

5. *Dr. N. L. Remes, Chairman (Summer use planned)
   Department of Chemistry
   Stern College for Women
   Yeshiva University
   253 Lexington Avenue
   New York, N.Y. 10016

6. *Dr. Donald O. Peterson (No response)
   Department of Chemistry
   Gallaudet College
   Kendall Green
   Washington, D.C. 20002

7. *Dr. John V. Clevenger (No response)
   Asst. Prof. Chem. and Nat. Sci.
   Lord Fairfax Community College
   P.O. Drawer E
   Middletown, Va. 22645

8. *Dr. Robert J. Merrer (Lack of hardware)
   Department of Chemistry
   Villa Maria College
   2551 West Lake Road
   Erie, Pa. 16505

9. *Prof. Claude H. P. Lupis (Material not applicable)
   Dept. of Minerology and Nat. Sci.
   Carnegie Mellon University
   Pittsburgh, Pa. 15213

10. Dr. Carl Elkins (Materials unsolicited)
Pharmacy School
University of Mississippi
Oxford, Mississippi 38677

11. *Capt. Arland W. Eyl, Jr. (Lack of hardware)
School of Health Care Sciences
MSDM-PA
Sheppard AFB
Texas 76311

12. *Dr. Bruce Bruneschwig (No response)
Asst. Prof. of Chemistry
New College of Hofstra University
1000 Fulton St.
Hempstead, N.Y. 11550

13. *Dr. Stephen K. Knudson (Lack of telephone funds)
Assistant Professor
Department of Chemistry
Florida Technological University
Box 25000
Orlando, Fla. 32816

14. *Prof. S. I. Miller (No response)
Department of Chemistry
Illinois Institute of Technology
Chicago, Ill. 60616

15. *Dr. Fred H. Greenberg (Lack of hardware)
Professor of Chemistry
State University College at Buffalo
1300 Elmwood Avenue
Buffalo, N.Y. 14222

16. *Dr. David R. Weill, III (Questionnaire completed)
Chairman, Chemistry Dept.
Shady Side Academy
423 Fox Chapel Road
Pittsburgh, Pa. 15238

17. *Dr. Kathleen A. Sullivan (No response)
36 Kendrick Road
Greenwood, Mass. 01880

18. Philippe C. Duchastel (Material not applicable)
Center for Computer Support of Instruction
The Florida State University
Tallahassee, Fla. 32306

19. Prof. Al J. Lata (Materials unsolicited)
Department of Chemistry
University of Kansas
Lawrence, Kansas 66044

20. Dean Wallace Guess (Summer use planned)
University of Mississippi
University, Mississippi 38677

21. Prof. J. V. Paukstelis (Questionnaire completed)
Department of Chemistry
Kansas State University
Manhattan, Kansas 66505

22. Prof. Ronald D. Crain (Materials unsolicited)
Department of Chemistry
University of Kansas
Lawrence, Kansas 66044

23. *Burtron Davis (No response)
Potomac State College of
West Virginia University
Keyser, West Virginia 26726

24. Prof. Roy E. Mitchell (No response)
Texas Tech University
Lubbock, Texas 79409

25. Dr. Bennett Hutchinson (Questionnaire completed)
Department of Chemistry
Abilene Christian College
Abilene, Texas 79601

26. Roy D. Caton, Jr. (Summer use planned)
Department of Chemistry
The University of New Mexico
Albuquerque, N.M. 87106

27. *Alan G. Smith (No response)
Department of Chemistry
University of Maine
96 Falmouth Street
Portland, Maine 04103

28. *William Torop (Questionnaire completed)
West Chester State College
West Chester, Pa. 19380

29. *I. M. Wilkinson (Summer use planned)
Department of Chemistry
Carleton University
Ottawa, Canada K1S 5B6

30. *J. F. O'Brien, Senior Lecturer (No response)
Applied Science
Warrnambool Inst. of Advanced Ed.
Kepler Street
Warrnambool, Victoria 3280
Australia
(User number card not mailed to
O'Brien since he's in Australia)

31. Dr. Richard B. Marston (Materials unsolicited)
Director, Communications Program
Office of Space Science and Applications
NASA
400 Maryland Avenue, S. W.
Washington, D.C. 20546

32. Dr. Gene A. Crowder, Head (Materials unsolicited)
Department of Chemistry
West Texas State University
Canyon, Texas 79105

33. W. R. Hakes (Materials unsolicited)
3227 Cornell
Big Spring, Texas 79720

34. Ms. Mary E. Richardson (Materials unsolicited)
Rt. 1 Box 161
Midland, Texas 79701

35. Dr. Bassam Shakhashiri (Questionnaire completed)
Dept. of Chemistry
Univ. of Wisconsin
1101 University Avenue
Madison, Wisconsin 53706

36. Neil R. Kestner (No response)
Professor of Chemistry
Louisiana State University
College of Chemistry and Physics
Baton Rouge, Louisiana 70803

37. *Gordon A. Parker (Summer use planned)
Assoc. Prof. of Chemistry
Department of Chemistry
The University of Toledo
Toledo, Ohio 43606

38. *Dr. Joseph S. Schmuckler (Lack of time)
Chairman, Science Education
Temple University
Philadelphia, Pa. 19122

39. *David McCormick (Material not applicable)
Co-ordinator
Manchester and Region Centre for
Education in Science Engineering
and Technology
Gaythorn Annexe, River St.
Manchester, 15

40. Dan Kallus (Lack of hardware)
Science Chairman
Midland Senior High School
Midland, Texas 79701

Appendix C

Explanations for not Accessing the Lessons

Later Use Planned

THE UNIVERSITY OF TOLEDO / TOLEDO, OHIO 43606 / [419] 531-5711

College of Arts and Sciences
Department of Chemistry

May 15, 1973

Dr. J.J. Lagowski
The University of Texas at Austin
Department of Chemistry
Austin, Texas 78712

Dear Dr. Lagowski:

Please accept my anology for not replying to your letter sooner regarding the receipt of the packet of computer-based materials. Prior commitments will prevent me from using the material before summer.

Sincerely,

Gordon A. Parker

Gordon A. Parker
Associate Professor of Chemistry

GAP:sg

STERN COLLEGE FOR WOMEN

YESHIVA UNIVERSITY

245 Lexington Avenue / New York, N.Y. 10016 / (212) 255-5600

May 14, 1973

Professor J. J. Lagowski
Department of Chemistry
The University of Texas at Austin
Austin, Texas 78712

Dear Professor Lagowski:

My apologies for not acknowledging the programming materials which you sent me. We have been promised access (terminals) to one of the University computers for next year, but our plans as to how to utilize this are still very tentative.

My request was definetely not frivolous, but I will be unable to go over the materials that you so graciously sent until the summer.

Our computer facilities will probably be limited, and my problem, once I find out what we will be getting, is how to utilize them most efficiently.

Thank you once again.

Cordially yours,

Nathaniel L. Remes

N. L. Remes, Chairman
Department of Chemistry

NLR/gr

THE UNIVERSITY OF MISSISSIPPI
SCHOOL OF PHARMACY
UNIVERSITY, MISSISSIPPI 38677

May 7, 1973

Office of the Dean

Dr. Joe J. Lagowski
Professor of Chemistry
Department of Chemistry
University of Texas at Austin
Austin, Texas 78712

Dear Joe:

Thank you very much for your letter of April 30, indicating that we have not yet used the materials which you sent to us and which we appreciated very much. We have had a very unfortunate experience with our computer and particularly with Carl Elkins, who was our computer man. Carl has been involved in divorce proceedings and has resigned his position at the University of Mississippi School of Pharmacy Data Center. We have just recently employed another young man and I have instructed him to become familiar with the Computer Assisted Instruction program. It may be that we will have to send him down to your department for a reorientation. As soon as he is initiated into what is going on with our computer, I will get back in touch with you regarding further progress that we may be making on our Computer Assisted Instruction program here at our School. Thank you for your continued interest.

Best personal regards.

Sincerely,

Wallace L. Guess
Dean

cc: Mr. James M. Coffey

CARLETON UNIVERSITY

OTTAWA CANADA
K1S 5B6

DEPARTMENT OF CHEMISTRY

May 7, 1973

Professor J. J. Lagowski
Department of Chemistry
The University of Texas at Austin
Austin, Texas 78712
U.S.A.

Dear Sir,

Thank you for your letter of April 30, 1973 and also for the packet of computer-based materials received some time ago.

Unfortunately I have not yet had time to access and assess the system but I am hoping that within the next month I shall be able to do this and I will certainly respond to your materials as soon as possible.

Yours sincerely,

I Mary Wilkinson

I. Mary Wilkinson (Miss)

IMW/jt

COLLEGE 453-1900
REGISTRAR 453-5512

May 22, 1973

P.O. BOX 2000
STE. ANNE DE BELLEVUE, QUEBEC

Dr. J. J. Lagowski
Department of Chemistry
The University of Texas at Austin
Austin, Texas

Dear Professor Lagowski:

Please accept my apologies for not responding earlier to the materials you sent me. The problem was in no way related to the material but concerned our own facilities and my time.

Due to a change-over in our equipment, I was without a suitable terminal for a period of about four weeks just at the time your package arrived. Since that time, I have been heavily committed to organisation of the Montreal Two-Year College Chemistry Conference and this, coupled with normal end of term administration and final examinations, has prevent me from using the material.

I am still very interested in experimenting with the material and will certainly be trying it out in the next few weeks. Unfortunately, it will not be possible for me to have students use it due to the vacation. However, this would have been prohibitively expensive due to the long-distance connection in any case.

Sincerely yours,

Graeme Welch

Graeme Welch, Ph.D.
Chemistry Department

gw/kc

THE UNIVERSITY OF NEW MEXICO | ALBUQUERQUE

DEPARTMENT OF CHEMISTRY

June 1, 1973

Dr. J. J. Lagowski
Department of Chemistry
The University of Texas at Austin
Austin, Texas 78712

Dear Dr. Lagowski:

Just recently, when going through a huge stack of mail which had accumulated while I was away, I found your April 30 letter concerning my having not responded to the materials sent to me earlier. My problem has been one of just not getting around to using the materials, as I have been out of town most of the time. I plan to give the system a try as soon as I get back from Europe late in July. I do hope that this long delay has not created any inconvenience, as I certainly wish to evaluate your system.

Sincerely,

Roy D. Caton, Jr.
Assoc. Professor

TEMPLE UNIVERSITY
COLLEGE OF EDUCATION
PHILADELPHIA, PENNSYLVANIA 19122

DIVISION OF CURRICULUM
AND INSTRUCTION

SCIENCE INSTITUTE PROGRAMS

June 15, 1973

Dr. J. J. Lagowski
Professor of Chemistry
University of Texas at Austin
Austin, Texas 78712

Dear Dr. Lagowski:

In answer to your letter concerning our utilization of the packet of computer based materials that you developed, I have been unable to use them as of the moment. The university is undergoing several major administrative changes and this has affected me and my own teaching duties. As Chairman of the Department of Science Education, I have had to busy myself with other than the kind of work I would like to have been doing over the past year. It looks to me as though this might continue at least another semester or two. I do hope that I will be able to study your materials in detail and utilize them in them in the freshman chemistry course that I usually am assigned to teach.

Sincerely,

Dr. Joseph S. Schmuckler
Professor
Science Education

JSS/lb

Lack of Hardware Facilities or Available Time

SCHOOL OF HEALTH CARE SCIENCES, USAF, (ATC)
SHEPPARD AIR FORCE BASE, TEXAS 76311

9 May 1973

Dr. J.J. Lagowski
Dept. of Chemistry
University of Texas at Austin
Austin, Texas 78712

Dear Dr. Lagowski,

In reply to your letter of 30 April concerning my lack of response to Project C-BE materials, please accept my apologies for not contacting you sooner. I have been on leave for several weeks previous to this time, and had no chance to work on this project. Since returning, however, I have been working with my associate, Mr. Marvin Parks, in an attempt to locate the necessary equipment for gaining access to TAURUS and CLIC. Thus far, we have met with frustration.

We are continuing to work on this problem intensely, believing that somewhere in this organization (Air Training Command) there is a teletype terminal with an appropriate data set. Mr. Parks was in Austin a couple of weeks ago, and conferred with Dr. Culp on procedures to gaining access to your system. If our efforts do not meet with success very soon we will call the suggested number for additional assistance.

I am most anxious to get started on this project, and am hopeful that our problems will be resolved within a few days.

Sincerely yours,

Arlando W. Eyl, Jr.

ARLANDO W. EYL., JR., Ph.D.
Captain, USAF, BSC

FYL

STATE UNIVERSITY COLLEGE AT BUFFALO
1300 ELMWOOD AVENUE — BUFFALO, NEW YORK 14222

DEPARTMENT OF CHEMISTRY
862-5803

May 21, 1973

Dr. J. J. Lagowski
Professor of Chemistry
University of Texas
Austin, Texas 78700

Dear Dr. Lagowski:

This letter is in reply to your inquiry about our not using Project C-BE.

Shortly after the instructional materials arrived I was told that the acoustic coupler was no longer on our campus.

I am sorry that we are not able to examine the demonstration lessons and I hope that we will be able to do so.

Sincerely,

Fred H. Greenberg

Fred H. Greenberg
Professor of Chemistry

lr.mg

Packet 0

COE COLLEGE
Cedar Rapids, Iowa 52402

March 26, 1973

Dr. J. J. Lagowski
Department of Chemistry
The University of Texas, Austin
Austin, Texas 78712

Dear Dr. Lagowski:

Thank you for your letter of March 15. I asked for "information" about the C-BE programs in response to an advertisement which appeared in the "Journal of Chemical Education". I find I can not use them however, since we do not have the required teletype on campus, and the prospects for raising funds for same are not bright.

Thank you for your interest. I wish I could be more helpful.

Sincerely yours,

Jeffrey E. Keiser

Jeffrey E. Keiser
Assoc. Professor of Chemistry

jEK/jh

VILLA MARIA COLLEGE 2551 WEST LAKE ROAD, ERIE, PENNSYLVANIA 16505

February 15, 1973

Professor J.J. Lagowski
Department of Chemistry
The University of Texas
Austin, Texas 78712

Dear Professor Lagowski:

Thank you for your letter of 31 January which included materials on Project C-BE. I received a project/course card with a user number for me (ZCA2474 password: HXR).

Unfortunately, because our TTY is hardwired to the DECsystem-10 at the University of Pittsburgh, we have no acoustic coupler available. Hence, teleprocessing your material to my environment is not possible as far as I am aware. Could you forward pertinent listings and documentation in the absence of my being able to get on to your system? I am particularly interested in modules Chem. 113,115,124,60 and CCR 32.
Your consideration of my request is most appreciated. Thank you for the materials you have sent in the past and I look forward to receiving any materials you may have available in the future.

Sincerely,

Robert J. Merrer
Department of Chemistry

MIDLAND SENIOR HIGH SCHOOL
906 WEST ILLINOIS
MIDLAND, TEXAS

May 8, 1973

OFFICE OF THE PRINCIPAL

Dr. J. J. Lagowski
Professor of Chemistry
Department of Chemistry
The University of Texas at Austin
Austin, Texas 78712

Dear Dr. Lagowski:

I cannot offer an excuse, only my sincere apology for my tardiness in responding to the material you furnished me about Project CBE. You may recall that I requested some information about your project while you visited Midland as ACS Tour Speaker recently.

Since I teach high school chemistry, my motive in requesting this information was for my information about one of the recent trends in chemical education. Then too, many of my chemistry students attend UT and I can give them some idea of what to expect and what opportunities are available.

I fully intended to sample the programs available but was not able to secure the necessary facilities in Midland. However, on the basis of what I have read and your presentations here and at the Dallas National ACS Meeting, I have been able to acquire a good deal of information about CAI.

Therefore, I am returning the access-card and the evaluation questionnaires to you. I hope you do not mind my keeping the reminder of the packet.

In my opinion the work done by you and your group is superior and a step in the right direction. I would like to see some of the results filter down to the high school level.

Thank you for your help.

Yours truly,

Dan Kallus

Dan Kallus
Science Chairman

Materials Not Applicable

Carnegie-Mellon University

Department of Metallurgy
and Materials Science
Schenley Park
Pittsburgh, Pennsylvania 15213
(412) 621-2600, ext. 358

May 16, 1973

Professor J.J. Lagowski
Department of Chemistry
The University of Texas at Austin
Austin, Texas 78712

Dear Professor Lagowski,

My apologies for not answering sooner your letter of April 30, but the end of the academic year was rather hectic.

We did receive in early February a description of computer lessons available for free demonstration. If we did not avail ourselves of these programs, it is because the type of lessons proposed was not fitting very well the curriculum of our Metallurgy and Materials Science department. We are grateful, however, for your offering us this opportunity.

Best regards and wishes,

Sincerely yours,

C.H.P. Lupis
Professor of Metallurgy
and Materials Science

CHPL:lp

Manchester and Region Centre for Education
in Science, Engineering and Technology

COORDINATOR

D McCORMICK MSc
Manchester Polytechnic
John Dalton Faculty of Technology
Gaythorn Annexe, River Street
Manchester 15

Telephone: 061 236 4600

9th May 1973

Professor J J Lagowski
Department of Chemistry
University of Texas at Austin
Austin
Texas

Dear Professor Lagowski,

Thank you for your letter of 30th April 1973. I have received the computer-based materials which you advertised in the Journal of Chemical Education, and I thank you for sending them to me. The Centre, of which I am the Co-ordinator, does not have any teaching staff of its own, but acts to promote science education in this region. One of the ways in which it does this is by providing various services to those in higher education.

Since I was aware that there were several lecturers in chemistry in this region who are interested in computer-based education, I thought that they might be interested in seeing the materials you have produced. Consequently on receiving your materials I brought them to the attention of those who have expressed an interest, and at the moment one institution is considering making use of them. As soon as they have decided one way or another I will send you full details.

Thank you once more for meeting my request.

Yours sincerely,

D. McCormick
Co-ordinator

THE FLORIDA STATE UNIVERSITY TALLAHASSEE 32306

Center for Computer Support
of Instruction

May 8, 1973

Professor J. J. Lagowski
Department of Chemistry
University of Texas at Austin
Austin, Texas 78712

Dear Professor Lagowski:

Forgive me for the delay in responding to your inquiry concerning our use of the C-BE materials which you recently made available to us.

In requesting information on the materials, we were hoping that they would be mostly CMI materials and that they might be transferable here to our own CDC 6500. Since this was not the case, we have not paid much attention to the materials themselves.

Your follow-up letter however, has encouraged me to forward the entire packet to the Chemistry Department to see what interest it may draw there. I therefore expect you will be hearing from them in the near future.

I appreciate your concern for us and thank you for your cordial assistance.

Best Wishes for a Pleasant Spring,

Philippe C. Duchastel

Philippe C. Duchastel

PCD/bi

Lack of Telephone Funds

FLORIDA TECHNOLOGICAL UNIVERSITY
BOX 25000 ORLANDO, FLORIDA 32816

DEPARTMENT OF CHEMISTRY

May 3, 1973

Professor J.J. Lagowski
Professor of Chemistry
Department of Chemistry
The University of Texas at Austin
Austin, Texas 78712

Dear Dr. Lagowski:

Thank you for your inquiry concerning our use of your computer-based educational materials in chemistry. We were favorably impressed with the quality of the sample material included in the packet, and attempted to arrange trial use of the material in the appropriate courses. We were unable to do so mainly due to a lack of funds to support the cost of the long-distance telephone charges.

Faculty interest in CAI has continued, despite the setback. We are now seeking other methods for a trial of such material, but our first efforts will be directed toward obtaining the necessary funds.

Sincerely,

Stephen K. Knudson

Stephen K. Knudson
Assistant Professor

SKK/mmr

Appendix D

Completed Questionnaires

423 FOX CHAPEL ROAD
PITTSBURGH, PENNSYLVANIA 15238

February 12, 1973

Dr. J. J. Lagowski
University of Texas at Austin
Project C-BE
Department of Computer Based Science & Engineering Education
Austin, Texas 78712

Dear Dr. Lagowski,

I have tried your CBEDEM programs, especially the OCH 1 and OCH 17 programs. I was delighted with the content, pedagogery and interaction between the teletype and its operator.

It is not economically feasible for our student to use the computer in Texas because of the high cost of telephone calls. Is it possible for us to get a copy of the CBEDEM set so that we can evaluate at greater length the feasibility of this type of instructional technique in chemistry?

I am enclosing a questionnaire form related to our experience with the CBEDEM set. The only difficulty we encountered was that we were not aware that the accoustic coupler should be set to 1/2 duplex. This was not in the instructions.

I look forward to hearing from your group in the near future and I hope that you will send these programs and information about others to me as soon as possible.

Sincerely,

David R. Weill III
Chairman,
Department of Chemistry

DRW:bma

Enclosure

Please be frank! We are not soliciting compliments, so please "tell it like it is!" If you wish to remain anonymous you may do so by omitting your name, but please list the name of your college and your teaching experience. Good luck! If you have difficulty "dialing in" and "signing on" please be patient and keep trying. If all else fails you may call for assistance directly to Project C-BE by dialing 512/471-4191 (office), 512/478-9207 (home) and ask for Dr. Sam Castleberry.

FOR INSTRUCTOR USE

NAME: [illegible] R [illegible] III
TITLE: Head of Chem Dept
ADDRESS: 4123 [illegible] Road

DATE: 2-12-73
COLLEGE: [illegible]
TELEPHONE NO.: [illegible]

I. Circle the number and list date that the Chemistry Module(s) were tested:

1. Colligative Properties — Date: ______
2. Solution Concentration — Date: ______
3. Phase Changes — Date: ______
4. Heterogeneous Equilibria — Date: ______
5. Organic Synthesis: Electrophilic Aromatic Substitution — Date: ______
6. Elementary NMR Interpretation — Date: ______
7. (circled) Elementary Alkene-related Synthesis — Date: 2-11-73
8. (circled) Nomenclature of Alkanes — Date: 2-11-73

II. A. Circle Type Terminal Used:

(Model 33 TTY) (circled)   Model 35 TTY   CRT List Name ______

Other List Name ______

B. Circle Nearest description which matches your teaching experience in chemistry.

1 year or less   2-5 years   (6-10 years) (circled)   11-15 years   over 15 years

C. Circle descriptor which matches how you learned about the availability of this material.

(Read "Ad" in Chem. Engr. and Educ.) (circled)   Heard about offer from fellow instructors

Other Describe:

D. Circle the descriptor which most closely reflects your overall rating of this material:

1. Professional or Technical Content of Material(s)

Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable
(circled, together with Excellent)	(circled, together with Superior)					

Any Comments? 33 TTY is slow [illegible]

2. The pedagogical techniques employed in within the chemistry modules were:

Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable
	(1)					

Any Comments? Difficulties in "7"

3. Adoption Of Innovative Techniques:
If the judgement were left up to you for adopting or not adopting C-BE techniques to supplement formal instruction in chemistry in your college (provided money and support were available) what would your answer be?

Yes, without reservation	Yes, but on a trial basis	Undecided or don't know	Not at this time	Not Ever, (without reservation)
(1)				

Reasons: _____

4. What were your own personal experiences in following the instructions provided you in the packet?

Very easy and simple to follow instructions well written. Very successful	I was successful but had minor troubles because of unfamiliarity	Not successful because of major troubles	A complete failure in trying to follow the procedure
(1)			

5. Evaluation of Curriculum Materials

If you compared the computer based chemistry materials with materials covering the same content taught by you at your institution, how would you rate the C-BE material?

C-BE is Superior to institution course matter	C-BE is Better than institution course matter	C-BE is Equal to or the same as institution course matter	C-BE is Below rating of inst. course matter	C-BE is Greatly below institution course matter

6. Measure of Computer Activity On Campus. Circle appropriate reply. The (college) PDP-10 PDP-8/S (has) hasn't a (computer) _____ (model) _____ time-sharing computer which is used for interactive or instructional use in (list courses or subjects) MATH, PHYSICS, COMPUTER SCI

7. The Chemistry Department does, (does not) have its own instructional computer system which is a _____ model _____ computer.

8. (I have) have not had prior experience with computers in education and have written programs in chemistry in the BASIC programming language.

9. If the programs were written in the BASIC language, would you be interested in aquiring them for use on the computer within your system? YES

10. What interactive language would you prefer to see used to write these types of programs? BASIC — FORTRAN IV

11. If these programs (and the complete package of which they are a part) were made available at your school, would you allow your students to use the programs:

1. As homework for a grade material for no credit? 2. On a voluntary basis only as a supplement for credit. 3. Not at all. (4. Other (specify).
FOR PRACTICE AND HANDLE FOR CREDIT

12. If you planned to use any of this material at what level and with what texts or laboratory manuals would you use it? SAME AS SPECIFIED
GOOD GENERAL BACKGROUND

13. List the texts or manuals you would like to see computer based supplementary material developed for: SIENKO & PLANE 4TH ED.
FIRST COURSE ORGANIC CHEM - LIST

14. Would you be interested in directions on how to prepare computer based materials yourself? yes If so, please write or call Sam Castleberry at 512/ 471-4191.

15. Are you interested in further pursuing the use of the chemistry materials in your classes? yes If you please contact Prof. J. J. Lagowski, Dept. of Chemistry, University of Texas, Austin, Texas 78712. Telephone No. is 512/ 471-3288.

Sam Castleberry

Please be frank! We are not soliciting compliments, so please "tell it like it is!" If you wish to remain anonymous you may do so by omitting your name, but please list the name of your college and your teaching experience. Good luck! If you have difficulty "dialing in" and "signing on" please be patient and keep trying. If all else fails you may call for assistance directly to Project C-BE by dialing 512/471-4191 (office), 512/478-9207 (home) and ask for Dr. Sam Castleberry.

FOR INSTRUCTOR USE

NAME: William Torop
TITLE: [illegible]
ADDRESS: [illegible] 19380

DATE: April 24, 1973
COLLEGE: [illegible]
TELEPHONE NO. [illegible] 70

I. Circle the number and list date that the Chemistry Module (s) were tested:

1. Colligative Properties — Date: ____
2. Solution Concentration — Date: ____
3. Phase Changes — Date: ____
4. Heterogeneous Equilibria — Date: ____
5. Organic Synthesis: Electrophilic Aromatic Substitution — Date: ____
6. Elementary NMR Interpretation — Date: ____
7. Elementary Alkene-related Synthesis — Date: ____
8. Nomenclature of Alkanes — Date: March 1973

II. A. Circle Type Terminal Used:

Model 33 TTY Model 35 TTY CRT List Name ____

Other List Name RCA

B. Circle Nearest description which matches your teaching experience in chemistry.

1 year or less 2-5 years 6-10 years **11-15 years** (circled) over 15 years

C. Circle descriptor which matches how you learned about the availability of this material.

Read "Ad" in Chem. Engr. and Educ Heard about offer from fellow instructors

Other Describe: Stan Smith - Univ of Illinois [illegible]

D. Circle the descriptor which most closely reflects your overall rating of this material:

1. Professional or Technical Content of Material (s)

Superior | **Excellent** (circled) | Good | Average | Fair | Substandard | Completely Unacceptable

2. The pedagogical techniques employed in within the chemistry modules were:

Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable

Any Comments? _____

3. Adoption Of Innovative Techniques:
If the judgement were left up to you for adopting or not adopting C-BE techniques to supplement formal instruction in chemistry in your college (provided money and support were available) what would your answer be?

Yes, without reservation	Yes, but on a trial basis	Undecided or don't know	Not at this time	Not Ever, (without reservation)

Reasons: _____

_____

4. What were your own personal experiences in following the instructions provided you in the packet?

Very easy and simple to follow. Instructions well written. Very successful	I was successful but had minor troubles because of unfamiliarity	Not successful because of major troubles	A complete failure in trying to follow the procedure

5. Rating Of Curriculum Materials

If you compared the computer based chemistry materials with materials covering the same content taught by you at your institution, how would you rate the C-BE material?

C-BE is Superior to institution course matter	C-BE is Better than institution course matter	C-BE is Equal to or the same as institution course matter	C-BE is Below rating of inst. course matter	C-BE is Greatly below institution course matter

6. Measure of Computer Activity On Compus. Circle appropriate reply. The (college) W.C.S.C. has, hasn't a (computer) H.P. (model) 2000 C time-sharing computer which is used for interactive or instructional use in (list courses or subjects) Chem 100.

7. The Chemistry Department does, does not have its own instructional computer system which is a ______ model ______ computer.

8. I have, have not had prior experience with computers in education and have written programs in chemistry in the Fortran IV programming language.

9. If the programs were written in the BASIC language, would you be interested in aquiring them for use on the computer within your system? Yes

10. What interactive language would you prefer to see used to write these types of programs? No opinion

11. If these programs (and the complete package of which they are a part) were made available at your school, would you allow your students to use the programs:

   1. As homework for a grade material for no credit? 2. On a voluntary basis only as a supplement for credit. 3. Not at all. 4. Other (specify) Required – for credit

12. If you planned to use any of this material at what level and with what texts or laboratory manuals would you use it? Freshman class [illegible]

13. List the texts or manuals you would like to see computer based supplementary material developed for: [illegible]

14. Would you be interested in directions on how to prepare computer based materials yourself? Yes If so, please write or call Sam Castleberry at 512/ 471-4191.

15. Are you interested in further pursuing the use of the chemistry materials in your classes? Yes If you please contact Prof. J. J. Lagowski, Dept. of Chemistry, University of Texas, Austin, Texas 78712. Telephone No. is 512/ 471-3268.

Please be frank! We are not soliciting compliments, so please "tell it like it is!" If you wish to remain anonymous you may do so by omitting your name, but please list the name of your college and your teaching experience. Good luck! If you have difficulty "dialing in" and "signing on" please be patient and keep trying. If all else fails you may call for assistance directly to Project C-BE by dialing 512/471-4191 (office), 512/478-9207 (home) and ask for Dr. Sam Castleberry.

FOR INSTRUCTOR USE

NAME: Joseph V. Paukstelis DATE: 3/30/73
TITLE: ASST PROF COLLEGE:
ADDRESS: Dept of Chem Kansas State U. TELEPHONE NO. 913-532-6454

I. Circle the number and list date that the Chemistry Module(s) were tested:

1.	Colligative Properties	Date:
2.	Solution Concentration	Date: 4/11/73
3.	Phase Changes	Date:
4.	Heterogeneous Equilibria	Date: 4/11/73
(5)	Organic Synthesis: Electrophilic Aromatic Substitution	Date: 2/26/73
6.	Elementary NMR Interpretation	Date:
(7)	Elementary Alkene-related Synthesis	Date: 2/26/73
8.	Nomenclature of Alkanes	Date: 4/11/73

II. A. Circle Type Terminal Used:

(Model 33 TTY) Model 35 TTY CRT List Name

Other List Name

B. Circle Nearest description which matches your teaching experience in chemistry.

1 year or less 2-5 years (6-10 years) 11-15 years over 15 years

C. Circle descriptor which matches how you learned about the availability of this material.

Read "Ad" in Chem. Engr. and Educ (Heard about offer from fellow instructors)

Other Describe:

D. Circle the descriptor which most closely reflects your overall rating of this material:

1. Professional or Technical Content of Material(s)

	(5) (2) (6) (7)		(4)			
Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable

Any Comments?

2. The pedagogical techniques employed in within the chemistry modules were:

Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable
	(5) (8)	(2)	(7)			

Any Comments? _____

3. Adoption Of Innovative Techniques:
If the judgement were left up to you for adopting or not adopting C-BE techniques to supplement formal instruction in chemistry in your college (provided money and support were available) what would your answer be?

Yes, without reservation	Yes, but on a trial basis	Undecided or don't know	Not at this time	Not Ever, (without reservation)
X				

Reasons: _____

4. What were your own personal experiences in following the instructions provided you in the packet?

Very easy and simple to follow. Instructions well written. Very successful	I was successful but had minor troubles because of unfamiliarity	Not successful because of major troubles	A complete failure in trying to follow the procedure
	X		

5. Rating Of Curriculum Materials

If you compared the computer based chemistry materials with materials covering the same content taught by you at your institution, how would you rate the C-BE material?

C-BE is Superior to institution course matter	C-BE is Better than institution course matter	C-BE is Equal to or the same as institution course matter	C-BE is Below rating of inst. course matter	C-BE is Greatly below institution course matter
		X		

6. Measure of Computer Activity On Campus.
Circle appropriate reply. The (college) _____
has, (hasn't) a (computer) _____ (model) _____
time-sharing computer which is used for interactive or instructional
use in (list courses or subjects) _____.

7. The Chemistry Department does, (does not) have its own instructional computer system which is a _____ model _____ computer.

8. I have, (have not) had prior experience with computers in education and have written programs in chemistry in the FORTRAN programming language.

9. If the programs were written in the BASIC language, would you be interested in aquiring them for use on the computer within your system? Yes

10. What interactive language would you prefer to see used to write these types of programs? WHAT OTHER THAN BASIC

11. If these programs (and the complete package of which they are a part) were made available at your school, would you allow your students to use the programs:

1. As homework for a grade material for no credit? 2. On a voluntary basis only as a supplement for credit. 3. Not at all. 4. Other (specify)
1 and/or 2

12. If you planned to use any of this material at what level and with what texts or laboratory manuals would you use it? Organic Chem 1 & 2
MORRISON AND BOYD

13. List the texts or manuals you would like to see computer based supplementary material developed for: _____

14. Would you be interested in directions on how to prepare computer based material yourself? Yes If so, please write or call Sam Castleberry at 512/ 471-4191.

15. Are you interested in further pursuing the use of the chemistry materials in your classes? Yes If you please contact Prof. J. J. Lagowski, Dept. of Chemistry, University of Texas, Austin, Texas 78712. Telephone No. is 512/ 471-3288.

Please be frank! We are not soliciting compliments, so please "tell it like it is!" If you wish to remain anonymous you may do so by omitting your name, but please list the name of your college and your teaching experience. Good luck! If you have difficulty "dialing in" and "signing on" please be patient and keep trying. If all else fails you may call for assistance directly to Project C-BE by dialing 512/471-4191 (office), 512/478-9207 (home) and ask for Dr. Sam Castleberry.

FOR INSTRUCTOR USE

NAME: Bennett Hutchinson
TITLE: Assistant Professor
ADDRESS: Box 501 ACC

DATE: May 22, 1973
COLLEGE: Abilene Christian
TELEPHONE NO. 677-1911

I. Circle the number and list date that the Chemistry Module(s) were tested:

1. Colligative Properties — Date: _____
2. Solution Concentration — Date: _____
3. Phase Changes — Date: _____
4. Heterogeneous Equilibria — Date: _____
5. Organic Synthesis: Electrophilic Aromatic Substitution — Date: _____
6. Elementary NMR Interpretation — Date: _____
7. Elementary Alkene-related Synthesis — Date: _____
8. Nomenclature of Alkanes — Date: _____
9. Chem 126 - Ksp; Chem 124 - Common Ion — Date: March, 1973

II. A. Circle Type Terminal Used:

Model 33 TTY Model 35 TTY CRT List Name _____

Other List Name ?

B. Circle Nearest description which matches your teaching experience in chemistry.

1 year or less (2-5 years) 6-10 years 11-15 years over 15 years

C. Circle descriptor which matches how you learned about the availability of this material

Read "Ad" in Chem. Engr. and Educ Heard about offer from fellow instructors

Other Describe: From Dr. Lagowski

D. Circle the descriptor which most closely reflects your overall rating of this material:

1. Professional or Technical Content of Material (s)

1	1	(1)	1	1	1	1
Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable

Any Comments? _____

2. The pedagogical techniques employed in within the chemistry modules were:

Superior	Excellent	Good (1)	Average	Fair	Substandard	Completely Unacceptable

Any Comments? _____

3. Adoption Of Innovative Techniques:
If the judgement were left up to you for adopting or not adopting C-BE techniques to supplement formal instruction in chemistry in your college (provided money and support were available) what would your answer be?

Yes, without reservation	Yes, but on a trial basis (1)	Undecided or don't know	Not at this time	Not Ever, (without reservation)

Reasons: The modules would have to be adapted to fit our students and our course

4. What were your own personal experiences in following the instructions provided you in the packet?

Very easy and simple to follow. Instructions well written. Very successful	I was successful but had minor troubles because of unfamiliarity (1)	Not successful because of major troubles	A complete failure in trying to follow the procedure

5. Rating Of Curriculum Materials

If you compared the computer based chemistry materials with materials covering the same content taught by you at your institution, how would you rate the C-BE material?

C-BE is Superior to institution course matter	C-BE is Better than institution course matter	C-BE is Equal to or the same as institution course matter (1)	C-BE is Below rating of inst. course matter	C-BE is Greatly below institution course matter

6. Measure of Computer Activity On Campus.
Circle appropriate reply. The (college) Abilene Christian
has, (hasn't) a (computer) _____ (model) _____
time-sharing computer which is used for interactive or instructional
use in (list courses or subjects) _____.

7. The Chemistry Department does, (does not) have its own instructional
computer system which is a _____ model _____ computer.

8. I have, (have not) had prior experience with computers in education and have
written programs in chemistry in the _____ programming language.

9. If the programs were written in the BASIC language, would you be
interested in aquiring them for use on the computer within your system? P

10. What interactive language would you prefer to see used to write these
types of programs? The present language is fine.

11. If these programs (and the complete package of which they are a part) were
made available at your school, would you allow your students to use the programs:

(1) As homework for a grade material for no credit? (2) On a voluntary basis
only as a supplement for credit. 3. Not at all. 4. Other (specify)
_____

12. If you planned to use any of this material at what level and with what texts
or laboratory manuals would you use it? Freshman; Dickerson,
Gray, Haight

13. List the texts or manuals you would like to see computer based supplementary
material developed for: Any modern, commonly-used text
_____

14. Would you be interested in directions on how to prepare computer based
materials yourself? No If so, please write or call Sam Castleberry at
512/ 471-4191.

15. Are you interested in further pursuing the use of the chemistry materials
in your classes? Yes If you please contact Prof. J. J. Lagowski,
Dept. of Chemistry, University of Texas, Austin, Texas 78712. Telephone
No. is 512/ 471-3268.

Please be frank! We are not soliciting compliments, so please "tell it like it is!" If you wish to remain anonymous you may do so by omitting your name, but please list the name of your college and your teaching experience. Good luck! If you have difficulty "dialing in" and "signing on" please be patient and keep trying. If all else fails you may call for assistance directly to Project C-BE by dialing 512/471-4191 (office), 512/478-9207 (home) and ask for Dr. Sam Castleberry.

FOR INSTRUCTOR USE

NAME: B.Z. SHAKHASHIRI
TITLE: Assistant Professor
ADDRESS: Univ. of Wisconsin-Madison

DATE: June 22, 1973
COLLEGE:
TELEPHONE NO. 608-263-2924

I. Circle the number and list date that the Chemistry Module(s) were tested:

(1) Colligative Properties — Date:
(2) Solution Concentration — Date:
(3) Phase Changes — Date: Between
(4) Heterogeneous Equilibria — Date:
(5) Organic Synthesis: Electrophilic Aromatic Substitution — Date: April
(6) Elementary NMR Interpretation — Date: May
(7) Elementary Alkene-related Synthesis — Date:
(8) Nomenclature of Alkanes — Date:

II. A. Circle Type Terminal Used:

(Model 33 TTY) Model 35 TTY CRT List Name

Other List Name

B. Circle Nearest description which matches your teaching experience in chemistry.

1 year or less (2-5 years) 6-10 years 11-15 years over 15 years

C. Circle descriptor which matches how you learned about the availability of this material.

Read "Ad" in Chem. Engr. and Educ Heard about offer from fellow instructors

Other Describe: Joe Lagowski

D. Circle the descriptor which most closely reflects your overall rating of this material:

1. Professional or Technical Content of Material(s)

Superior	(Excellent)	Good	Average	Fair	Substandard	Completely Unacceptable

Any Comments?

2. The pedagogical techniques employed in within the chemistry modules were.

Superior	Excellent	Good	Average	Fair	Substandard	Completely Unacceptable

Any Comments? _____

3. Adoption Of Innovative Techniques:
If the judgement were left up to you for adopting or not adopting C BE techniques to supplement formal instruction in chemistry in your college (provided money and support were available) what would your answer be?

Yes, without reservation	Yes, but on a trial basis	Undecided or don't know	Not at this time	Not Ever, (without reservation)

Reasons: _____

4. What were your own personal experiences in following the instructions provided you in the packet?

Very easy and simple to follow. Instructions well written. Very successful	I was successful but had minor troubles because of unfamiliarity	Not successful because of major troubles	A complete failure in trying to follow the procedure

5. Rating Of Curriculum Materials

If you compared the computer based chemistry materials with materials covering the same content taught by you at your institution, how would you rate the C-BE material?

C-BE is Superior to institution course matter	C-BE is Better than institution course matter	C-BE is Equal to or the same as institution course matter	C-BE is Below rating of inst. course matter	C-BE is Greatly below institution course matter

6. Measure of Computer Activity On Campus.
Circle appropriate reply. The (college) _____
(has), hasn't a (computer) _____ (model) 1108
~~time~~-sharing computer which is used for interactive or instructional use in (list courses or subjects) _____.

7. The Chemistry Department does, does not have its own instructional computer system which is a IBM model 7094 computer.

8. I (have) have not had prior experience with computers in education and have written programs in chemistry in the BASIC programming language.

9. If the programs were written in the BASIC language, would you be interested in aquiring them for use on the computer within your system? Yes

10. What interactive language would you prefer to see used to write these types of programs? BASIC

11. If these programs (and the complete package of which they are a part) were made available at your school, would you allow your students to use the programs:

(1.) As homework for a grade material for no credit? 2. On a voluntary basis only as a supplement for credit. 3. Not at all. 4. Other (specify)

_____

12. If you planned to use any of this material at what level and with what texts or laboratory manuals would you use it? All undergraduate levels should have such materials.

13. List the texts or manuals you would like to see computer based supplementary material developed for: All Shakhashiri texts & manuals !!!

14. Would you be interested in directions on how to prepare computer based materials yourself? _____ If so, please write or call Sam Castleberry at 512/ 471-4191.

15. Are you interested in further pursuing the use of the chemistry materials in your classes? _____ If you please contact Prof. J. J. Lagowski, Dept. of Chemistry, University of Texas, Austin, Texas 78712. Telephone No. is 512/ 471-3288.